There is no additional fee for this Amendment because the total number of claims has been reduced and the total number of independent claims remains unchanged.

REMARKS

Applicant respectfully requests reconsideration of this Patent Application, particularly in view of the above Amendment and the following remarks.

Amendment to Specification

Applicant has added element reference numerals to the Description of Preferred Embodiments section of this Patent Application. This Amendment is fully supported by the originally filed claim language and Figs. 1-4.

The Specification has been further amended by adding a sentence describing the shape of lower portion 8 of carrying body 2. This Amendment is fully supported by original Claim 8.

Applicant has further amended the Specification at Page 3, to correctly identify PCT International Publication WO 99/25019, to correct a translational error.

The Amendment to the Specification adds no new matter to this Patent Application.

Amendment to Claims

Applicant has amended Claim 10 by adding limitations of Claim 1, and to address objections to the claim language. Applicant believes that Claim 10 is now in independent form.

Applicant has canceled Claims 1 and 4, as being redundant in view of the Amendment to Claim 10.

Applicant has amended Claims 2, 3, 5-9, 11 and 12, to consistently name the elements, to form proper antecedent bases, and to clarify the invention.

The Amendment to the claims adds no new matter to this Patent Application.

Objection to Drawings

The Drawings have been objected to and Applicant has amended the Specification to overcome the objection to the Drawings by adding element reference numerals 1 and 3-8 to the Specification.

Applicant believes that the above Amendment and remarks overcome the objection to the Drawings.

Information Disclosure Statement

The Information Disclosure Statement filed 15 March 2001, has not been entered for failing to provide a concise explanation of each patent listed that is not in the English language.

Applicant points out that the Information Disclosure Statement refers to an English language description of the only non-English cited patent, as found on Page 3 of the Specification. However, if the Examiner requires a further explanation of the relevance of the non-English language patent, Applicant offers the following further explanation.

Applicant has amended the Specification at Page 3, to correct a translational error. The Specification should refer to PCT International Publication WO 99/25019, and not WO 092479 (which is not even a proper format of a PCT International Publication Number). A copy of PCT International Publication WO 99/25019 was enclosed with and cited in the previously filed Information Disclosure Statement. PCT International Publication WO 99/25019 is in the English language.

The only patent furnished with the Information Disclosure Statement, which is not in the English language, is German Patent Reference DE 43 32 488, which is cited and discussed at Page 3 of the Specification, as explained in the previously filed Information Disclosure Statement. If the Examiner requires a further

explanation, German Patent Reference DE 43 32 488, as shown in Figs. 1 and 2, discloses a wafer structure 3 which is applied by pressing wafer structure 3 with a pivotally mounted pressing arm 1, and pressurized manifold 7 communicates through holes within a top plate which is in contact with the wafer structure 3.

Applicant believes that the previously filed Information Disclosure Statement adequately explains the relevance of German Patent Reference DE 43 32 488, at lines 2-3 of the Specification. Applicant kindly request the Examiner to consider the information referred to in the previously filed Information Disclosure Statement.

Objection to Specification

The Specification has been objected to for the reasons set forth at Pages 2 and 3 of the Office Action.

Applicant has amended the Specification to address each and every issue raised by the Examiner. Applicant believes that the above Amendment and remarks overcome the objection to the Specification.

Claim Rejections - 35 U.S.C. §112

Claims 1-12 have been rejected under 35 U.S.C. §112, second paragraph, for the reasons set forth at Pages 3-5 of the Office Action.

Applicant has addressed each and every issue raised by the Examiner. Applicant believes that the above Amendment and remarks overcome each rejection of Claims 2, 3 and 5-12 under 35 U.S.C. §112, second paragraph.

Claim Rejections - 35 U.S.C. §103

Claims 1-3, 5, 6 and 9 have been rejected under 35 U.S.C. §103(a), as being unpatentable over the admitted prior art in the Specification, in view of the teachings of Suzuki et al., U.S. Patent 5,284,538, and Gore et al., U.S. Patent 5,733,410. Applicant believes that this rejection is rendered moot in view of the above Amendment and the following remarks.

Allowable Subject Matter

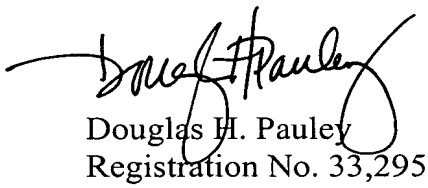
Claims 4, 7, 8 and 10-12 have been indicated as allowable if rewritten to overcome the rejections under 35 U.S.C. §112, second paragraph, and to include all of the limitations of the base claim and any intervening claim.

Applicant has amended Claim 10 into independent form. Thus, Applicant believes that Claim 10 is now in condition for allowance. Because each of Claims 2, 3, 5-9, 11 and 12, ultimately depends upon and further limits allowable Claim 10, Applicant believes that Claims 2, 3, 5-9, 11 and 12 are also in condition for allowance.

Conclusion

Applicant believes that the above Amendment and remarks address each and every issue and overcome each and every objection and rejection of the Office Action. However, should the Examiner detect any remaining issue, Applicant kindly requests the Examiner to contact the undersigned, preferably by telephone in an effort to expedite examination of this Patent Application.

Respectfully submitted,



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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Specification:

At Page 3, lines 1-11:

PCT International Publication WO [092479] 99/25019 describes a special mixture for mounting and disassembling a semiconductor wafer. German Patent Reference DE 43 32 488 discloses a foil attached as flat as possible by adhesive force. Also known are reversible adhesive layers. It has become apparent, that despite expensive preparation of the wafer substrate, there is an inherent disadvantage in the system. Through the introduction of a protective layer between the active side of the wafer and the assembly carrier, air pockets occur which cause unevenness on the rear side of the wafer. These air pockets can scarcely be eliminated by increasing the compressive force or distributing the local pressure locations. Repeating the pressing process several times also does not achieve the desired result. Moreover, the danger of breaking the wafer is increased in an uncontrolled manner by such manipulations.

At Page 6, line 1 through Page 7, line 13:

DESCRIPTION OF PREFERRED EMBODIMENTS

Figures 1 to 4 show four steps of a chronological progression of the method for applying the active side of the substrate or wafer 4 into the protective layer 5. The initial phase of the process is shown in Fig. 1. The feed arm 1 guides the carrying body 2 in a linear movement to the assembly carrier 6, to which the prepared protective layer 5, such as a wax, is applied. The carrying body 2 has a lower portion 8 which can have a shape, when viewed from above, of one of circular, oval and polygonal. The carrying body 2 has on its lower portion 8 [at least] one or a plurality of preferably central open [duct] ducts, each of which is supplied with excess pressure by a pressure medium, such as air or another fluid. Groove-shaped flow apertures 3, 7, through which the medium is extracted, are attached in an arc on the periphery of the lower portion 8. This negative pressure in the initial phase holds and fixes the wafer 4 at the edges of its rear side. As soon as sufficient retention force is achieved by suction, overpressure is actuated concentrically via the flow apertures 3, 7. This overpressure causes the wafer 4 to arch outwards but does not exceed the retention force through the effect of suction on the edge of the wafer 4. The wafer 4 is thus changed in its spatial shape but is still fixed centrally. In this static state, the wafer 4 is gradually moved towards the assembly carrier 6 with the protective layer 5.

Fig. 2 shows that the wafer 4 has reached its destination, the protective layer 5. This phase is detected by a corresponding sensor analysis and the feeding speed is reduced so that the protruding portion of the arched wafer 4 positively contacts the protective layer 5 but no significant deformations arise from immersion.

Fig. 3 shows a correlation between recovery of the arched wafer 4 and the remaining supply path and how it takes place. The excess pressure in the flow aperture is taken back, the wafer 4 returns to its original shape and simultaneously, through further advance via the feed arm 1, a practically constant contact pressure between the active side of the wafer 4 and the protective layer 5 is provided. During a phase of reforming the wafer 4, the surface of the wafer 4 unrolls uniformly from the central set-down point towards the edges and, as it thus spreads, systematically pushes air bubbles in front of it towards the edge.

Fig. 4 shows the end phase of applying into the protective layer 5. The wafer 4 is returned completely to its flat shape and rests in [a] the protective layer 5 parallel to the assembly carrier 6. The negative pressure in the flow apertures to hold the wafer 4 is removed, the wafer 4 detaches itself from the [feed arm] carrying body 2, which then travels back. The wafer 4 could also be secured to the assembly carrier 6 in an electrostatic manner.

In the Claims:, substitute the following Claims 2, 3 and 5-12 (Amended) for the pending Claims 2, 3 and 5-12:

2. (Amended) [In the] The method according to claim [1] 10, wherein when laid the substrate (4) applies a constant pressure on the protective layer (5).

3. (Amended) [In the] The method according to claim 2, wherein a pressure medium is applied to a side of the substrate (4) remote from the protective layer (5).

5. (Amended) [In the] The method according to claim [4] 3, wherein a carrying body (2) moveable relative to the assembly carrier (6) and a portion (8) facing the protective layer (5) carries the substrate (4) and has a plurality of flow apertures (3, 7) for accommodating the pressure medium.

6. (Amended) [In the] The method according to claim 5, wherein the portion (8) is [preferably] planar and the flow apertures (3, 7) are centrally formed ducts and circumferential grooves.

7. (Amended) [In the] The method according to claim 6, wherein the [flow apertures (3, 7)] ducts (7) are configured as overpressure lines and the grooves (3) are configured as negative pressure lines.

8. (Amended) [In the] The method according to claim 7, wherein the portion (8) is one of circular, oval and polygonal in cross-section when viewed from above.

9. (Amended) [In the] The method according to claim [1] 10, wherein a pressure medium is applied to a side of the substrate (4) remote from the protective layer (5).

10. (Amended) [In the method according to claim 1, wherein a formation of the substrate arching and a detachment of] A method for applying a thin-walled, flat substrate to an assembly carrier (6) with a protective layer (5), the improvement comprising:

with respect to the protective layer (5), arranging the substrate at a spacing and curved in a convex manner, contacting the protective layer (5) with the substrate (4), and laying the substrate (4) over the protective layer (5) from a contact point towards an edge of the substrate, and the substrate being arched and detached

from [the] a carrying body (2) [are achieved] by controlling a pressure of [the] a medium in a cavity between the substrate (4) and the carrying body (2).

11. (Amended) [In the] The method according to claim [4] 5, wherein the flow apertures (3, 7) are centrally formed ducts and circumferential grooves and the ducts (7) are configured as overpressure lines and the grooves (3) are configured as negative pressure lines.

12. (Amended) [In the] The method according to claim [4] 5, wherein the portion (8) is one of circular, oval and polygonal in cross-section when viewed from above.